

### COMPRESSOR DEFINITION

Designation	EM 2X3121U
Nominal Voltage/Frequency	115-127 V 60 Hz
Engineering Number	513304089

### A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-290		
3 Nominal voltage and frequency	115-127 / 60	[ V / Hz ]	
4 Application type	Low-Medium Back Pressure (Light Commercial - Curves until T.Evap -		
4.1 Evaporating temperature range	-40°C to 0°C	(-40°F to 32°F)	
5 Motor type	RSCR		
6 Starting torque	LST - Low Starting Torque		
7 Expansion device	Capillary tube		
8 Compressor cooling		Operating voltage range	
		50 Hz	60 Hz
8.1 LBP (32°C Ambient temperature)	Static/Fan	-	103 to 140 V
8.2 LBP (43°C Ambient temperature)	Static/Fan	-	103 to 140 V
8.3 HBP (32°C Ambient temperature)	-	-	-
8.4 HBP (43°C Ambient temperature)	-	-	-
9 Maximum condensing temperature			
9.1 Operating	18.4	[kgf/cm <sup>2</sup> ] (262 psig)	/ °C - °F
9.2 Peak	20.6	[kgf/cm <sup>2</sup> ] (293 psig)	/ °C - °F
10 Maximum winding temperature	130	[ °C ]	

### B - MECHANICAL DATA

1 Commercial designation	1/3	[hp]
2 Displacement	5.54	[cm <sup>3</sup> ] (0.338 cu.in)
2.1 Bore [mm]	21.000	
2.2 Stroke [mm]	16.000	
3 Lubricant charge	180	[ml] (6.09 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO22	
4 Weight (with oil charge)	7.84	[kg] (17.28 lb.)
5 Nitrogen charge	0.2 to 0.3	[kgf/cm <sup>2</sup> ] (2.84 to 4.27 psig)

### C - ELETRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	115-127 V 60 Hz 1 ~ (Single phase)	
2 Starting device type	PTC	
2.1 Starting device	8EA14C3/8EA14E63/QPS2-A4R7MD3/QPS2-A4R7MD3 094	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	20(180)	[µF(VAC minimum)]
5 Motor protection	4TM762MDBZZ-53	
6 Start winding resistance	5.30	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	3.26	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	16.90	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	1.85	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (60 Hz)	2.36	[A] - Measured according to UL 984
11 Approval boards certification	CE - TUV - UKCA - UL	

### D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @115V60Hz			ASHRAELBP32 Static		Evaporating temperature (Condensing temperature		-23.3°C (-9.94°F) 54.4°C (129.92°F)	
Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
1185	299	347	193	1.73	3.53	6.14	1.55	1.80

TEST CONDITIONS: @115V60Hz			ASHRAELBP32 Fan		Evaporating temperature (Condensing temperature		-23.3°C (-9.94°F) 54.4°C (129.92°F)	
Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
1208	304	354	194	1.74	3.60	6.23	1.57	1.83

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V60Hz			ASHRAE32 Fan		(Condensing temperature 35°C (+95°F))				
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40 (-40)	633	160	185	122	1.10	1.87	5.19	1.31	1.52
-35 (-31)	798	201	234	136	1.23	2.36	5.87	1.48	1.72
-30 (-22)	999	252	293	151	1.37	2.96	6.61	1.67	1.94
-25 (-13)	1238	312	363	166	1.50	3.68	7.44	1.88	2.18
-20 (- 4)	1516	382	444	181	1.63	4.52	8.39	2.11	2.46
-15 (+ 5)	1835	462	538	194	1.74	5.50	9.49	2.39	2.78
-10 (+14)	2198	554	644	206	1.84	6.61	10.75	2.71	3.15
-5 (+23)	2605	656	763	214	1.91	7.88	12.22	3.08	3.58
0 (+32)	3059	771	896	219	1.95	9.30	13.91	3.50	4.08

TEST CONDITIONS: @115V60Hz			ASHRAE32 Fan		(Condensing temperature 45°C (+113°F))				
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40 (-40)	588	148	172	125	1.14	1.74	4.72	1.19	1.38
-35 (-31)	751	189	220	140	1.28	2.22	5.34	1.35	1.57
-30 (-22)	949	239	278	158	1.43	2.81	5.98	1.51	1.75
-25 (-13)	1184	298	347	177	1.59	3.52	6.67	1.68	1.95
-20 (- 4)	1458	367	427	195	1.75	4.35	7.42	1.87	2.17
-15 (+ 5)	1773	447	520	213	1.90	5.31	8.28	2.09	2.43
-10 (+14)	2131	537	624	230	2.04	6.41	9.26	2.33	2.71
-5 (+23)	2533	638	742	244	2.17	7.66	10.40	2.62	3.05
0 (+32)	2981	751	874	255	2.28	9.06	11.72	2.95	3.43

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V60Hz		ASHRAE32 Fan			(Condensing temperature 55°C (+131°F))					
Evaporating temperature		Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40	(-40)	521	131	153	127	1.17	1.54	4.12	1.04	1.21
-35	(-31)	682	172	200	144	1.32	2.02	4.75	1.20	1.39
-30	(-22)	879	221	257	164	1.48	2.61	5.36	1.35	1.57
-25	(-13)	1112	280	326	186	1.66	3.30	5.97	1.51	1.75
-20	(- 4)	1383	349	405	208	1.85	4.13	6.61	1.67	1.94
-15	(+ 5)	1695	427	497	231	2.04	5.08	7.30	1.84	2.14
-10	(+14)	2049	516	600	252	2.23	6.16	8.08	2.04	2.37
-5	(+23)	2446	616	717	272	2.42	7.40	8.96	2.26	2.63
0	(+32)	2890	728	847	290	2.59	8.78	9.98	2.52	2.93

TEST CONDITIONS: @115V60Hz		ASHRAE32 Fan			(Condensing temperature 65°C (+149°F))					
Evaporating temperature		Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40	(-40)	433	109	127	129	1.19	1.28	3.31	0.83	0.97
-35	(-31)	594	150	174	148	1.34	1.76	4.03	1.02	1.18
-30	(-22)	789	199	231	170	1.52	2.34	4.69	1.18	1.37
-25	(-13)	1021	257	299	194	1.72	3.04	5.30	1.33	1.55
-20	(- 4)	1291	325	378	220	1.94	3.85	5.89	1.48	1.73
-15	(+ 5)	1600	403	469	247	2.18	4.79	6.49	1.64	1.90
-10	(+14)	1951	492	572	273	2.42	5.87	7.14	1.80	2.09
-5	(+23)	2346	591	687	299	2.65	7.09	7.84	1.98	2.30
0	(+32)	2785	702	816	322	2.89	8.46	8.64	2.18	2.53

### F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal EUEM		
2 Tray holder	No		
3 Connectors			
3.1 SUCTION	8.2 +0.12/-0.08	[mm]	(0.323" +0.005"/-0.003")
3.1.1 Material	Copper		
3.1.2 Shape	Straight		
3.2 DISCHARGE	6.5 +0.12/-0.08	[mm]	(0.256" +0.005"/-0.003")
3.2.1 Material	Copper		
3.2.2 Shape	Straight		
3.3 PROCESS	6.5 +0.12/-0.08	[mm]	(0.256" +0.005"/-0.003")
3.3.1 Material	Copper		
3.3.2 Shape	Straight		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		